

CLAIMS

What is claimed is:

1. A videophone system comprising:

5 a plurality of videophones;

at least one communications network configured for transmitting video and audio
communications interconnecting said videophones;

at least one operations center connected with said communications network
and having means for storing information related to the users of said videophones,
10 said operations center being configured to communicate with said videophones via
said communications network.

2. The videophone system of claim 1 further comprising at least one communications
medium configured for transmitting video and audio communications, connecting

15 each of said videophones to a communications network,

3. The videophone system of claim 1 wherein said operations center comprises means
for storing a user registry including video information related to said users.

20 4. The videophone system of claim 1 wherein said operations center comprises means
for storing a user registry including phone directory information related to said users.

5. The videophone system of claim 1 wherein said operations center comprises means for storing a user registry including provisioning information related to said users.

6. The videophone system of claim 1 wherein said operations center further comprises
5 at least one server for processing one or more of the following applications:

(i) determining call particulars such as, but not limited to, length of call and the location of the parties to the call for billing, (ii) processing SIP protocols for communicating with other videophone systems and the components thereof, (iii) authenticating and ensuring security of calling videophone systems and the
10 components thereof,

(iv) enabling traditional telephone applications such as, but not limited to, caller id, (v) determining the availability of the called party for call, (vi) call messaging (vii) instant messaging, (viii) selectably retrieving supplemental information such as, but not limited to telephone directory information, or (ix) interconnecting with
15 the PSTN communications network.

7. The videophone system of claim 2 wherein said communications network comprises a CATV network, and wherein each of said videophones is connected to a cable modem as a component of said communications medium.

8. The videophone system of claim 1 wherein said communications network comprises an xDSL network, and wherein each of said videophones is connected to an xDSL modem as a component of said communications medium.

9. The videophone system of claim 2 wherein said videophone further comprises a videophone interface unit, and wherein said videophone interface unit is remotely located from said videophone and proximate to said communications medium, and
5 said videophone is wirelessly connect to said videophone interface unit and said videophone interface unit is connected via cable means to said communications medium.

10. The videophone system of claim 2 wherein said videophone further comprises a
10 videophone interface unit, and wherein said videophone interface unit is remotely located from said videophone and proximate to said communications medium, and said videophone is connected via cable means to said videophone interface unit, and said videophone interface unit is connected via cable means to said communications medium.

15 11. The videophone system of claim 2 wherein said videophone further comprises a videophone interface unit, and wherein said videophone interface unit is a component of said videophone and, and said videophone is connected to said communications medium.

20 12. A method for providing a videophone communication system comprising:

connecting a plurality of videophones to one or more communications media configured for transmitting video and audio communications,

connecting said communications media to a common communications network configured for transmitting video and audio communications,

storing information related to the users of the videophones at one or more operations centers configured to communicate with the communications network,

5 selectably accessing the stored information necessary to complete a videophone call, and

connecting the calling party to the party to be called through the communications network and the communications media of the calling and the called party.

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13. A method for providing a videophone communication system as claimed in claim 12 further comprising:

selectably obtaining the images and sounds of the calling party,

digitizing the obtained images and sounds of the calling party,

15 uniquely identifying the party to be called with respect to the stored information relating to the users of the videophones,

selectably obtaining the images and sounds of the called party,

selectably transmitted the obtained images and sounds of the calling party to the called party over the communications media and communications network, and

20 selectably transmitted the obtained images and sounds of the called party to the calling party over the communications media and communications network.

14. A method for providing a videophone communication system as claimed in claim 12, wherein the images and sound of at least one of the parties to the call is captured by a camera and microphone contained within a videophone device serving as an end user terminal for the videophone communications system.

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15. A method for providing a videophone communication system as claimed in claim 12, wherein the images and sound of at least one of the parties to the call is retrieved from memory means which are included as part of the videophone communications system.

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16. A method for providing a videophone communication system as claimed in claim 12 further comprising:

connecting a plurality of PSTN phones to one or more communications media and communications network configured for transmitting audio communications,

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uniquely identifying the party to be called

determining from the stored information whether the party to be called is capable of receiving a videophone call,

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if the party is not capable of receiving a videophone call, connecting the calling party to the party to be called through the communications network and the communications media configured for transmitting video and audio communications of the calling party and the communications network and the communications media configured for transmitting audio communications of the called party.

17. A videophone system including a plurality of videophones, wherein at least one videophone is connected to a videophone interface unit comprising:

an adapter connected to, and configured for affording communication with said videophone over a PSTN network;

5 an adapter connected to, and configured for affording communication with said videophone over a broadband network, and

processor means for selectably linking said videophone to said PSTN network adapter or to said broadband network adapter,

10 wherein the videophone can selectably receive and make calls on the PSTN network as well as on the broadband network.

18. The videophone system of claim 17 wherein said videophone system includes at least one PSTN telephone which is connected to a PSTN network and to the videophone interface unit, and wherein said videophone interface unit includes
15 means for both the PSTN telephone and the videophone alerting users when there is an incoming call on either the PSTN network or the broadband network.

19. The video system of claim 18 wherein said videophone interface unit includes means for isolating said PSTN telephone from the PSTN network.

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20. The videophone system of claim 18 further comprising means for using the same telephone number for said videophone and said PSTN telephone.

21. The videophone system of claim 17 wherein the videophone interface unit includes means for causing an incoming call on the broadband network to have a different alert on the videophone than an incoming call on the PSTN network, so as to allow the users to distinguish the network on which the incoming call is being made.

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22. The videophone system of claim 17 wherein said videophone interface unit includes means for selectably routing an audio and video call made on the videophone on the broadband network, and an audio only call made on the videophone on the PSTN network.

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23. The videophone system of claim 17 wherein said videophone interface unit includes means for selectably routing an audio and video call made on the videophone on the broadband network, and an audio only call made on the videophone on the broadband network as a VoIP call.

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24. The videophone system of claim 17 further comprising:

an operations center connected to said broadband network and having means for storing information related to the users of said videophones, said operations center being configured to communicate with said videophones via said broadband network, and wherein said operations center includes means for determining information indicating whether both the calling and the called party have a videophone, and means for communicating such information to said videophone interface unit,

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wherein said videophone interface unit can selectably route a call made on the videophone on either said broadband network or said PSTN network, and

wherein said videophone interface unit uses such information to selectably route a call made on the videophone to a party having a videophone, over the broadband network

25. A method for providing a videophone system including at least one videophone, said method comprising:

selectably connecting and configuring the videophone for communication with a PSTN network

selectably connecting and configuring the videophone for communication with a broadband network

determining which network to use for a party to be called based upon the capability of that party to receive calls on each of the available networks, and

determining which network to use for receiving a call based upon the network used by the party placing the call.

26. A personal videophone including a camera, display, telephone keypad, speaker, microphone, all of which are operatively connected, and further comprising:

means for connecting said videophone to a communications network configured for transmitting and receiving video and audio communications,

means for digitizing the signals received by said camera, for selectably transmitting such camera signals over said communication network, and for selectably displaying the image represented thereby on said display screen,

means for digitizing the signals received by said microphone and for selectably transmitting such microphone signals over said communication network in a manner that they are synchronized with said camera signals,

means for receiving digital signals over said communications network representing the images and sound transmitted to the videophone, and for selectably displaying the signals representing the images on said display screen and for playing the signals representing the sound on said speaker,

means for placing a videophone call using information entered or selected by a user, and

means for uniquely identifying said videophone with respect to any other systems or devices connected to said communications network.

27.A videophone as claimed in claim 26 wherein said camera is high resolution, and further comprising a wide-angle lens, and image processing means for affording zoom, pan and tilt functionality by selecting various zones and magnifications within the resultant image from said camera.

28.A videophone as claimed in claim 26 further comprising illumination means for providing supplemental light for the camera.

29.A videophone as claimed in claim 28 wherein said illumination means includes spectrum outside of that normally visible with the human eye, and wherein said camera is sensitive to said non-visible spectrum used for the illumination means.

5 30.A videophone as claimed in claim 26 wherein said means for connecting to a communications network comprises a videophone interface unit connected to a communications medium, which communications medium is connected to the communications network, and wherein the connection between the videophone and the videophone interface unit is wireless.

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31.A videophone as claimed in claim 26 further comprising:

memory means for storing information related to the operation of the videophone, wherein such information includes one or more of the following: operation menus, telephone directories, user preferences, call logs, current time, current date, information about the users of the videophone, information about the users of other phones to be called with the videophone, and information control means for navigating, selecting, inputting, outputting and editing said information.

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32.A videophone as claimed in claim 31 wherein said memory means includes a component located within the videophone and a component located remotely from the videophone, and where the component located remotely from the videophone provides backup and overflow storage for the component located within the videophone.

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33.A videophone as claimed in claim 31, wherein said information about the users includes selectably stored video images of one or more of the users.

5 34.A videophone as claimed in claim 31, wherein said information about the users includes selectably stored reminder information about one or more of the users.

35.A videophone as claimed in claim 31, wherein said information about the users includes selectably stored information about the types of information one or more of
10 the users is currently available to receive.

36.A videophone as claimed in claim 35, wherein the types of information which the videophone can receive includes on or more of the following: chat, messaging service, information services, audio telephone calls, video telephone calls, IP
15 telephone calls, or PSTN telephone calls.

37.A videophone as claimed in claim 31, wherein said telephone directories include one or more of the following: speed dial numbers, videophone numbers, standard PSTN telephone numbers, video images of the users associated with the other videophone
20 numbers, audio messages associated with the other PSTN telephone numbers and videophone numbers.

38. A videophone as claimed in claim 37, wherein said videophone further comprises means for selectably capturing and storing in said memory means, images of the users associated with a videophone number being called.

5 39. A videophone as claimed in claim 37, wherein said videophone further comprises means for selectably retrieving and storing in said memory means, stored images of the users associated with a videophone number being called.

40. A videophone as claimed in claim 39 for which the images to be retrieved have been
10 stored in memory means associated with the videophone being called.

41. A videophone as claimed in claim 31, wherein said videophone further comprises means for selectably capturing and selectably storing in said memory means, images of the users associated with a second videophone calling said videophone,
15 thereby providing video caller id functionality.

42. A videophone as claimed in claim 31, wherein said videophone further comprises means for selectably retrieving and selectably storing in said memory means, images of the users associated with a second videophone calling said videophone,
20 thereby providing video caller id functionality.

43. A videophone as claimed in claim 31, wherein said videophone further comprises means in the event a user does not answer the videophone, to selectably capture

and selectably store in said memory means, images of the users associated with a second videophone calling said videophone, thereby providing video answering machine functionality.

- 5 44. A videophone as claimed in claim 31, wherein said videophone further comprises means in the event a user does not answer the videophone, to selectably retrieve and selectably store in said memory means, images of the users associated with a second videophone calling said videophone, thereby providing video answering machine functionality.

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45. A videophone as claimed in claim 26 further comprising auxiliary input means for locally generated video images such as still pictures and full motion video and auxiliary input control means for selectably digitizing and transmitting such locally generated images in addition to or as an alternative to the signals received by said camera.

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46. A videophone as claimed in claim 26 wherein said display is a rectangular screen that has been rotated ninety degrees to afford the vertical display of two windows.

- 20 47. A method for making a videophone call comprising:

connecting at least two videophones to a communications network configured for transmitting video and audio communications, each of the videophones including a

camera, display screen, telephone keypad, speaker, microphone, all of which are operatively connected,

selectably entering or selecting information with the videophone of the calling party uniquely identifying said videophone of the called party with respect to any other systems or devices connected to said communications network,

placing a videophone call to the called party using information entered or selected by the calling party,

digitizing the signals received by the camera of the calling party's videophone, for selectably transmitting such camera signals over the communication network,

digitizing the signals received by the microphone of the calling party's videophone and for selectably transmitting such microphone signals over the communication network in a manner that they are synchronized with the camera signals of the calling party's videophone,

digitizing the signals received by the camera of the called party's videophone, for selectably transmitting such camera signals over the communication network,

digitizing the signals received by the microphone of the called party's videophone and for selectably transmitting such microphone signals over said communication network in a manner that they are synchronized with the camera signals of the called party's videophone,

receiving the digital signals transmitted by the videophone of the calling party over said communications network representing the images and sound transmitted by the videophone of the called party and for selectably displaying the signals

representing the images on said display screen and for playing the signals representing the sound on said speaker of the videophone of the called party, and

receiving the digital signals transmitted by the videophone of the called party over said communications network representing the images and sound transmitted
5 by the videophone of the calling party and for selectably displaying the signals representing the images on said display screen and for playing the signals representing the sound on said speaker of the videophone of the calling party.

48. The method of claim 47 further comprising processing the received signals to
10 facilitate enhanced perception by a handicapped user.

49. A videophone including at least a display screen, telephone keypad, and speaker, all of which are operatively connected, and further comprising:

means for connecting said videophone to a communications network
15 configured for transmitting video and audio communications,

means for selectably receiving signals which can be transmitted over said communications network, which signals represent images and/or sound, and wherein said signals are transmitted from a remote location accessible through the communications network,

20 means for selectably accessing the remote location using information entered or selected by a user of said videophone device with said videophone device, and

means for selectably displaying the signals representing any transmitted signals representing the images on said display screen, and for playing any transmitted signals representing the sounds on said speaker.

5 50. A videophone as claimed in claim 49, further comprising remote memory means at the remote location, and wherein said remote memory means includes telephone directory information, whereby a user can use said means for placing a videophone call to connect to the remote memory means and selectably retrieve and display such telephone directory information.

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51. A videophone as claimed in claim 50 wherein said telephone directory information comprises stored database of traditional white page data.

15 52. A videophone as claimed in claim 50 wherein said telephone directory information comprises stored database of traditional yellow page data.

53. A videophone as claimed in claim 49, wherein said remote memory means includes supplemental information, and whereby a user can use said means for placing a videophone call to connect to the remotely stored memory means and selectably
20 retrieve and display such supplemental information, and wherein such supplemental information includes one or more of the following types of information:

scheduling information services such as, by way of example and not limitation, the services providing personal calendars,

information services information, such as, by way of example and not limitation, the services providing news, business, weather or sports information,

educational services information, such as, by way of example and not limitation, the services providing customer support or automated training, or

5 data services information, such as, by way of example and not limitation, the services providing flight information, medical information.

10 54.A videophone as claimed in claim 53, further comprising supplementary information output means for selectably downloading said supplemental information to another device.

15 55.A videophone as claimed in claim 49, wherein said means for selectably accessing a remote location further comprises means for programming the videophone to periodically access the remote location on an automatic basis, and wherein said means for selectably receiving signals from the remote location further comprised means for identifying the images and sounds that are desired to be received.

20 56.A videophone as claimed in claim 55 wherein said means for selectably displaying the signals comprises means for displaying the identified images and sounds when the videophone is not being used for a call.

57.A videophone as claimed in claim 55 wherein said means for selectably displaying the signals comprises means for displaying the identified images and sounds when

the videophone is being used for a call and in a manner so as to not unduly obstruct and video or audio information associated with the call.

58. A videophone as claimed in claim 49, wherein said means for selectably accessing a remote location further comprises means for instructing the videophone to access a desired remote location, and wherein said means for selectably receiving signals from the remote location further comprised means for identifying the images and sounds that are desired to be received.

59. A method for receiving and displaying information on personal videophone communications device, which device includes at least a display screen, telephone keypad, and speaker, all of which are operatively connected, comprising:

connecting said videophone to a communications network configured for transmitting video and audio communications,

selectably receiving digital signals being transmitted over said communications network representing the images and sound being transmitted, and for selectably displaying the transmitted signals representing any images on said display screen and for playing the transmitted signals representing any sounds on said speaker, wherein said signals have been stored in remotely located memory means capable of being accessed by said videophone through said communications network, and

selectably accessing said remote memory means using information entered or selected by a user of the videophone device with said videophone device.

60.A method for receiving and displaying information on personal videophone communications device as claimed in claim 59 further comprising including telephone directory information within the storage means, and selectably retrieving and displaying such telephone directory information of the screen of the videophone communication device.

61.A method for receiving and displaying information on personal videophone communications device as claimed in claim 59 further comprising including one or more of the following types of supplemental information within the storage means:

scheduling information services such as, by way of example and not limitation, the services providing personal calendars,

information services information, such as, by way of example and not limitation, the services providing news, business, weather or sports information,

educational services information, such as, by way of example and not limitation, the services providing customer support or automated training, or

data services information, such as, by way of example and not limitation, the services providing flight information, medical information, and

selectably retrieving and displaying such supplemental information on the screen of the videophone communication device.

62.A network operations center for a videophone system in which the operations center and a plurality of videophones are connected to a communications network by a plurality of communications media, said network and media being configured for

transmitting video and audio communications, and in which said operations center being configured to communicate with said videophones via said communications network and communications media, said operations center comprising:

storage means for storing information related to the users of said videophones,

5 first processing means for receiving information requests from said video phones and for retrieving such information as is requested from said storage means and transmitting the requested information to the requesting videophone,

second processing means for receiving information from said videophones and for selectively storing the received information in said storage means.

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63. A network operations center for a videophone system as claimed in claim 62, further comprising third processing means selectively for requesting and retrieving information related to the communications media and communications network intended to connect two videophones during a call, and for determining the suitability

15 of such media and network for such call.

64. A network operations center for a videophone system as claimed in claim 63 further comprising means for alerting the party attempting to make a call of the suitability of such media and network for such call.

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65. A network operations center for a videophone system as claimed in claim 62, wherein said second processing means further comprises means for requesting and retrieving information from said videophones.

66.A network operations center for a videophone system as claimed in claim 65 wherein said second processing means periodically requests directory information from said videophone and stores said directory information in said storage means.

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67.A network operations center for a videophone system as claimed in claim 65 wherein said second processing means periodically requests user setup information from said videophone and stores said user setup information in said storage means.

10 68.A network operations center for a videophone system as claimed in claim 62, wherein said second processing means further comprises means for accepting requests from said videophones to send information to the network operations center and to store information in said storage means.

15 69.A network operations center for a videophone system as claimed in claim 68 wherein said second processing means periodically receives requests from said videophones to store directory information and stores said directory information in said storage means.

20 70.A network operations center for a videophone system as claimed in claim 68 wherein said second processing means periodically receives requests from said videophone to store user setup information and stores said user setup information in said storage means.

71.A network operations center for a videophone system as claimed in claim 62 wherein said first processing means requests and retrieves directory information from said storage means.

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72.A network operations center for a videophone system as claimed in claim 62 wherein said first processing means requests and retrieves user setup information from said storage means.

10 73.A network operations center for a videophone system as claimed in claim 62,
wherein said first processing means further comprises means for requesting and
retrieving information from a first of said videophones with respect to information
related to a second of said videophones, and
wherein said first processing means requests and retrieves the request
15 information from said second of said videophones.